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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/551,974

10/05/2005

Naoki Toshima

TAN-116

3613

54630 7590 12/11/2008

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EXAMINER

GODENSCHWAGER, PETER F

ART UNIT

PAPER NUMBER

1796

MAIL DATE

DELIVERY MODE

12/11/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/551,974	Applicant(s) TOSHIMA ET AL.	
	Examiner PETER F. GODENSCHWAGER	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 September 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) 1-4 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 5-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/5/2005, 12/16/2005</u> . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of Group II, corresponding to claims 5-19 in the reply filed on September 2, 2008 is acknowledged.

Claims 1-4 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim.

Election was made **without** traverse in the reply filed on September 2, 2008.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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Claims 5-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shizuko (JP 11-241107A, English machine translation relied upon for citation purposes) in view of Wang et al. ("Preparation of Pd-Pt Bimetallic Colloids with Controllable Core/Shell Structures", *J. Phys. Chem., B*, 1997, 101, 5301-5306).

Regarding Claims 5, 8, and 9: Shizuko teaches a process for producing a ternary metal colloid (nanoparticles) forming a core/shell structure ([0005], [0006], [0010]) comprising forming a solution/dispersion of two different metal salts in a solvent to form the metal colloid/nanoparticles ([0005], [0006], [0010]). Shizuko further teaches adding a third metal ion to the solution of the metal colloid to form another layer on the metal colloid.

Shizuko does not teach the process where the third metal ion is initially dissolved in a second solvent and then mixed with the metal colloid. However, it is prima facie obvious in the absence of new or unexpected results to change the sequence of addition of ingredients (i.e. adding metal ion to solvent then mixing two solutions as opposed to adding metal ion to an already formed solution) (see MPEP 2144.04 IV).

Shizuko does not teach the process comprising the step of reducing the metal ions with hydrogen. However, Wang et al. teaches a process of forming metallic colloids with core/shell structures comprising using hydrogen as a reducing agent (Pg. 5302, Col 1, ¶3 - Col 2, ¶2 and Figure 1). Shizuko and Wang et al. are analogous art because they are concerned with the same field of endeavor, namely metallic colloids with a core/shell structure. At the time of the invention, a person of ordinary skill in the art would have found it obvious to use the hydrogen reduction step of Wang et al. in the process of Shizuko and would have been motivated to do so

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because Wang et al. teaches that this step provides for controllable core/shell structures (Pg. 5301, Col 2, ¶2).

Regarding Claims 6 and 7: Shizuko further teaches the process comprising the step of forming the particles in the presence of an oxyethylene chain (polyethylene glycol copolymer) as a protecting agent ([0010]).

Claims 10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shizuko (JP 11-241107A, English machine translation relied upon for citation purposes) in view of Wang et al. (“Preparation of Pd-Pt Bimetallic Colloids with Controllable Core/Shell Structures”, *J. Phys. Chem., B*, 1997, 101, 5301-5306).

Shizuko teaches a process for producing a ternary metal colloid (nanoparticles) forming a core/shell structure ([0005], [0006], [0010]) comprising forming a solution/dispersion of two different metal salts in a solvent to form the metal colloid/nanoparticles ([0005], [0006], [0010]). Shizuko further teaches where the metal nanoparticles may be Ni, Pt, Pd (reduction catalysts) ([0014]) Shizuko further teaches adding a third metal ion to the solution of the metal colloid to form another layer on the metal colloid.

Shizuko does not teach the process where the first and third metal ions are initially dissolved in a second solvent and then mixed with the metal colloid. However, it is prima facie obvious in the absence of new or unexpected results to change the sequence of addition of ingredients (i.e. adding metal ion to solvent then mixing two solutions as opposed to adding metal ion to an already formed solution) (see MPEP 2144.04 IV).

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Shizuko does not teach the process comprising the step of reducing the metal ions with hydrogen, where the hydrogen is absorbed on the particles. However, Wang et al. teaches a process of forming metallic colloids with core/shell structures comprising using hydrogen as a reducing agent, where the hydrogen is absorbed on the metal particles (Pg. 5302, Col 1, ¶3 - Col 2, ¶2 and Figure 1). Shizuko and Wang et al. are analogous art because they are concerned with the same field of endeavor, namely metallic colloids with a core/shell structure. At the time of the invention, a person of ordinary skill in the art would have found it obvious to use the hydrogen reduction step of Wang et al. in the process of Shizuko and would have been motivated to do so because Wang et al. teaches that this step provides for controllable core/shell structures (Pg. 5301, Col 2, ¶2).

Claims 11, 13, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shizuko (JP 11-241107A, English machine translation relied upon for citation purposes) in view of Wang et al. ("Preparation of Pd-Pt Bimetallic Colloids with Controllable Core/Shell Structures", *J. Phys. Chem., B*, 1997, 101, 5301-5306).

Shizuko teaches a process for producing a ternary metal colloid (nanoparticles) forming a core/shell structure ([0005], [0006], [0010]) comprising forming a solution/dispersion of two different metal salts in a solvent to form the metal colloid/nanoparticles ([0005], [0006], [0010]). Shizuko further teaches where the metal nanoparticles may be Ni, Pt, Pd (reduction catalysts) ([0014]) Shizuko further teaches adding a third metal ion to the solution of the metal colloid to form another layer on the metal colloid.

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Shizuko does not teach the process where the third metal ions is initially dissolved in a second solvent and then mixed with the metal colloid. However, it is prima facie obvious in the absence of new or unexpected results to change the sequence of addition of ingredients (i.e. adding metal ion to solvent then mixing two solutions as opposed to adding metal ion to an already formed solution) (see MPEP 2144.04 IV).

Shizuko does not teach the process comprising the step of reducing the metal ions with hydrogen. However, Wang et al. teaches a process of forming metallic colloids with core/shell structures comprising using hydrogen as a reducing agent, where the hydrogen is absorbed on the metal particles (Pg. 5302, Col 1, ¶3 - Col 2, ¶2 and Figure 1). Shizuko and Wang et al. are analogous art because they are concerned with the same field of endeavor, namely metallic colloids with a core/shell structure. At the time of the invention, a person of ordinary skill in the art would have found it obvious to use the hydrogen reduction step of Wang et al. in the process of Shizuko and would have been motivated to do so because Wang et al. teaches that this step provides for controllable core/shell structures (Pg. 5301, Col 2, ¶2).

Claims 15-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shizuko (JP 11-241107A, English machine translation relied upon for citation purposes) in view of Wang et al. ("Preparation of Pd-Pt Bimetallic Colloids with Controllable Core/Shell Structures", *J. Phys. Chem., B*, 1997, 101, 5301-5306).

Regarding Claims 15-17: Shizuko teaches a process for producing a ternary metal colloid (nanoparticles) forming a core/shell structure ([0005], [0006], [0010]) comprising

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forming a solution/dispersion of three different metal salts in a solvent to form the metal colloid/nanoparticles ([0005], [0006], [0010]).

Shizuko does not teach the process comprising the step of reducing the metal ions with hydrogen. However, Wang et al. teaches a process of forming metallic colloids with core/shell structures comprising using hydrogen as a reducing agent, where the hydrogen is absorbed on the metal particles (Pg. 5302, Col 1, ¶3 - Col 2, ¶2 and Figure 1). Shizuko and Wang et al. are analogous art because they are concerned with the same field of endeavor, namely metallic colloids with a core/shell structure. At the time of the invention, a person of ordinary skill in the art would have found it obvious to use the hydrogen reduction step of Wang et al. in the process of Shizuko and would have been motivated to do so because Wang et al. teaches that this step provides for controllable core/shell structures (Pg. 5301, Col 2, ¶2).

Regarding claims 18 and 19: Shizuko further teaches the process comprising the step of forming the particles in the presence of an oxyethylene chain (polyethylene glycol copolymer) as a protecting agent ([0010]).

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PETER F. GODENSCHWAGER whose telephone number is (571)270-3302. The examiner can normally be reached on Monday-Friday 7:30-5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on (571) 272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mark Eashoo/
Supervisory Patent Examiner, Art Unit 1796

/P. F. G./
Examiner, Art Unit 1796
December 1, 2008